

SECTION 16535
EMERGENCY LIGHTING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Unit emergency lights.
- B. Self-luminous exit signs.

1.2 SUBMITTALS

- A. Submit the following in accordance with the requirements of Section 01300.
 - 1. Catalog data describing emergency lighting. Include data substantiating that materials comply with specified requirements.
 - 2. Performance curves/data including certified photometric data for emergency lighting units.
 - 3. Warranty for emergency lighting units and exit signs.
 - 4. Maintenance instructions for inclusion in the operating and maintenance manuals.

1.3 ENVIRONMENTAL REQUIREMENTS

Provide emergency lighting units and exit signs suitable for operation at an altitude of 7500 feet above sea level.

1.4 SPARE MATERIALS

- A. Furnish the following extra materials matching products installed. Package the extra materials with protective covering for storage and identify with labels describing contents.
- B. Lamps: Provide 10 percent of quantity of lamps of each type, but no fewer than two lamps of each type.

1.5 QUALITY ASSURANCE

- A. Comply with ANSI/NFPA 70 - *National Electrical Code* and NFPA 101 - *Life Safety Code* for components and installation.
- B. Provide emergency lighting units that are UL 924 listed and labeled for their indicated use and location on this project.
- C. Use manufacturers that are experienced in manufacturing emergency lighting units similar to those indicated for this Project and have a record of successful in-service performance.

1.6 WARRANTY

- A. Emergency Lighting Units: Submit a warranty, mutually executed by the manufacturer and the installer, agreeing to replace emergency lighting units that fail in materials or workmanship within three years, beginning on the date of substantial completion. This warranty is in addition to, and not a limitation of, other rights and remedies LANL may have under the Contract Documents.

- B. Self-luminous Exit Signs: Submit a warranty, mutually executed by the manufacturer and the installer, agreeing to replace self-luminous exit signs that fail in materials or workmanship within five years, beginning on the date of substantial completion. This warranty is in addition to, and not a limitation of, other rights and remedies LANL may have under the Contract Documents.

PART 2 PRODUCTS

NOTE: Use emergency lighting units specified in 2.1 for indoor dry locations.

2.1 EMERGENCY LIGHTING UNIT

- A. Furnish a self-contained, fully automatic emergency lighting unit at each location indicated on the Drawings.
- B. Provide emergency lighting unit that is connectable for operation at either 120 or 277 volts.
- C. Provide emergency lighting unit that contains a 6 volt, maintenance-free, lead-calcium battery capable of delivering not less than 24 watts for 1.5 hours.
- D. Provide emergency lighting unit light source consisting of two adjustable lamp heads each with a 12 watt, PAR-36 sealed beam tungsten-halogen lamp.
- E. Provide emergency lighting unit with housing that is either:
1. Impact and scratch-resistant, corrosion proof thermoplastic with a UL94V-0 flame rating.
 2. Epoxy powder coat finished steel.
- F. Provide emergency lighting unit with overall dimensions, including lamp heads, not exceeding 14.5 inches high, 14.0 inches wide, 4.5 inches deep.
- G. Provide emergency lighting unit with a self-diagnostic system that meets the requirements of NFPA 101.
1. Automatically perform a self-test of battery and lamps for at least 30 seconds every 30 days.
 2. Any failure indicated by a visual status indicator and an audible alarm.
- H. Provide emergency lighting unit that will perform self-timed tests that are manually initiated through the test button, including:
1. Lamps and battery for at least 30 seconds.
 2. Lamps and battery for at least 90 minutes.
- I. Furnish emergency lighting unit with cordset as follows:
1. For 120 volt systems a 3-foot cordset with a NEMA 15-5P plug.
 2. For 277 volt systems a 3-foot, 600 volt rated SO cord with a NEMA L7-20P twistlock plug.

- J. Manufacturers: Lithonia 6ELM2P-HQ-SSB-H1206-CS, Chloride 6MF25W-WCHY-2-ADAL-LC3.

NOTE: Use emergency lighting units specified in 2.2 for damp, wet, very dusty locations.

2.2 SEVERE-DUTY EMERGENCY LIGHTING UNIT

- A. Furnish a self-contained, fully automatic, severe duty emergency lighting unit at each location indicated on the Drawings.
- B. Provide severe duty emergency lighting unit that is connectable for operation at either 120 or 277 volts.
- C. Provide severe duty emergency lighting unit that contains a 6 volt, maintenance-free, lead-calcium battery capable of delivering not less than 24 watts for 1.5 hours.
- D. Provide severe duty emergency lighting unit light source consisting of two adjustable lamp heads each with a 12 watt, PAR-36 sealed beam tungsten-halogen lamp.
- E. Provide severe duty emergency lighting unit housing that is fully gasketed, fiberglass-reinforced gray polyester that meets NEMA 1, 2, 3, 3R, 3S, 4, 4X, and 12 requirements.
- F. Provide severe duty emergency lighting unit with a self-diagnostic system that meets the requirements of NFPA 101.
 - 1. Automatically perform a self-test of battery and lamps for at least 30 seconds every 30 days.
 - 2. Any failure indicated by a visual status indicator and an audible alarm.
- G. Provide severe duty emergency lighting unit that will perform self-timed tests that are manually initiated through the test button, including:
 - 1. Lamps and battery for at least 30 seconds.
 - 2. Lamps and battery for at least 90 minutes.
- H. Manufacturer: Chloride MC28-ZV-2-ADAL.

2.4 SELF-LUMINOUS EXIT SIGN

- A. Furnish a UL listed self-luminous exit sign at each location indicated on the Drawings.
- B. Provide self-luminous exit sign that meets contrast and luminance requirements of NFPA 101.
 - 1. Contrast Ratio: Not less than 0.5.
 - 2. Letters: A minimum luminance of 0.06 footlamberts as measured by a color-corrected photometer.
- C. Furnish self-luminous exit sign rated to maintain the required minimum luminance for not less than 20 years.
 - 1. Illumination: Caused by the interaction of tritium and phosphors contained in sealed Pyrex glass tubes.

2. Color of Emitted Light: Yellow-green.
 3. Meets applicable Nuclear Regulatory Commission requirements.
- D. Provide single or double face self-luminous exit sign and directional arrows as indicated on the Drawings.
 - E. Provide self-luminous exit sign with black plastic housing, green vinyl face, white letter strokes, and transparent polycarbonate cover.
 - F. Provide mounting accessories suitable for each installation location.
 - G. Manufacturers: Safety Light Corporation 2040-XX-20, Chloride C3-G-U-20-X-BK-PW.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install emergency lighting units and exit signs in accordance with manufacturer's instructions.
- B. Locations of fixtures shown on the Drawings are diagrammatic. Coordinate fixture locations with building finishes, building structure, mechanical piping and ductwork, and automatic sprinkler system.
- C. Mount fixtures with bottom of fixture not less than 6'-8" or more than 12'-0" above finished floor.
- D. Provide accessory hangers, supports, stems, mounting brackets, and frames required to support emergency light fixtures. Provide supplemental outlet box braces for ceiling mounted exit signs. Refer to Section 16190 - Supporting Devices for additional requirements.
- E. Set fixtures plumb, square, level and aligned with walls unless otherwise indicated on the Drawings.
- F. Connect fixtures to a branch circuit that serves the general lighting in the area and ahead of any local or remote switches. Self-luminous exit signs do not require an electrical circuit.
 1. For 120 volt emergency lights install a NEMA L15-5R single receptacle within 12 inches of the emergency light fixture location. Refer to Section 16140 - Wiring Devices.
 2. For 277 volt emergency lights install a NEMA L7-20R single receptacle within 12 inches of the emergency light fixture location. Refer to Section 16140 - Wiring Devices.

3.2 FIELD QUALITY CONTROL

- A. Inspect each installed fixture for damage. Replace fixtures with damaged components.
- B. Test installed fixtures for proper operation. Test emergency fixtures with internal batteries for not less than 30 seconds. Replace malfunctioning fixtures then re-test. Repeat procedure until all fixtures operate properly.

3.3 ADJUSTING AND CLEANING

- A. Clean each fixture inside and out, including plastics and glassware. Use methods and materials recommended by manufacturer.
- B. Adjust fixture trim to fit adjacent surface.
- C. Aim lamps on emergency lighting units for most effective illumination of exit pathway.

END OF SECTION